(No Model.)

C. BOPP.

CAN STOPPER.

No. 358,959. Patented Mar. 8, 1887.

Fig: 1.

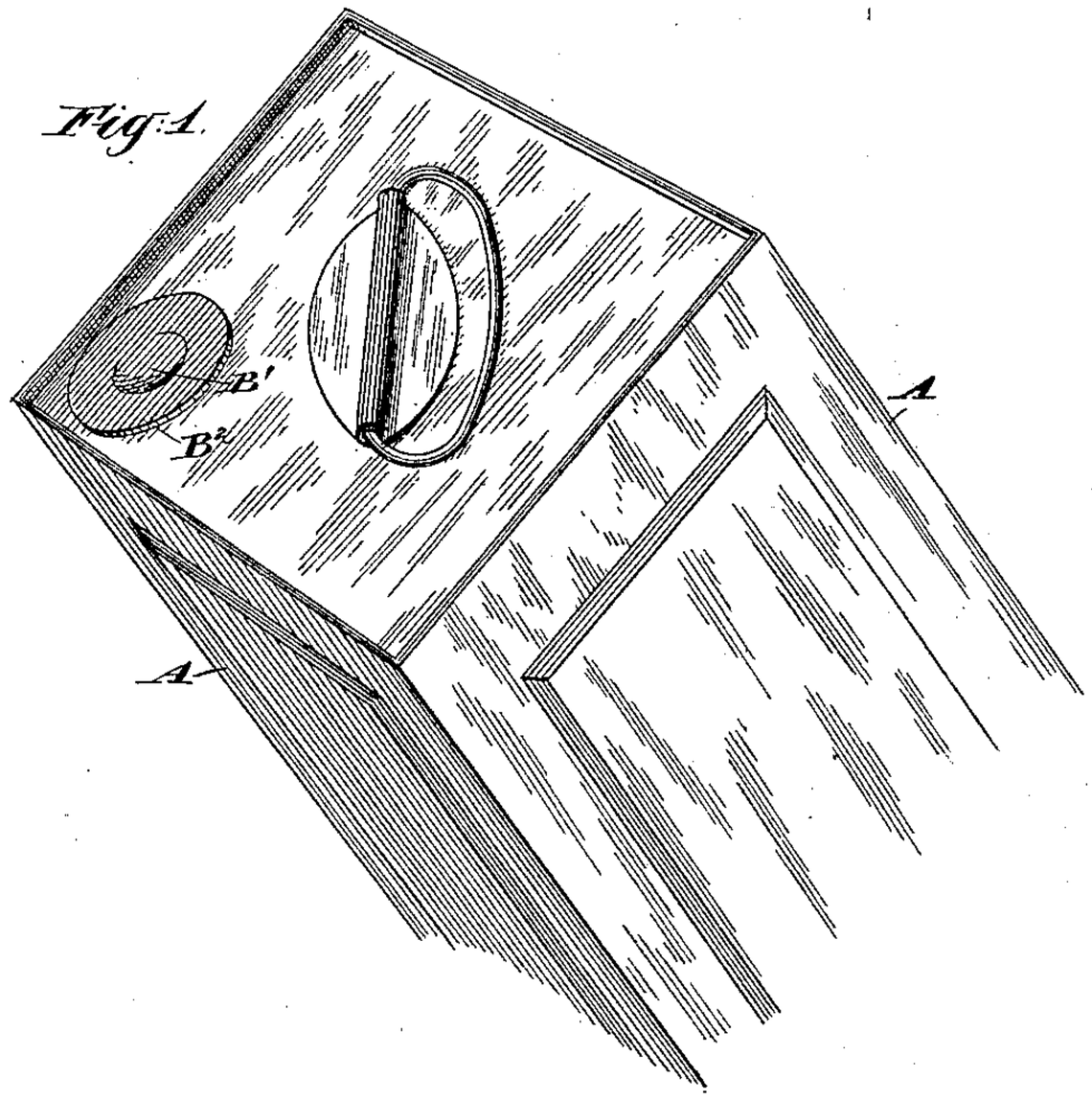

Fig: 2.

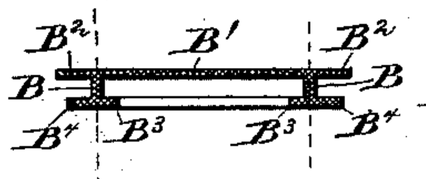

Fig: 3.

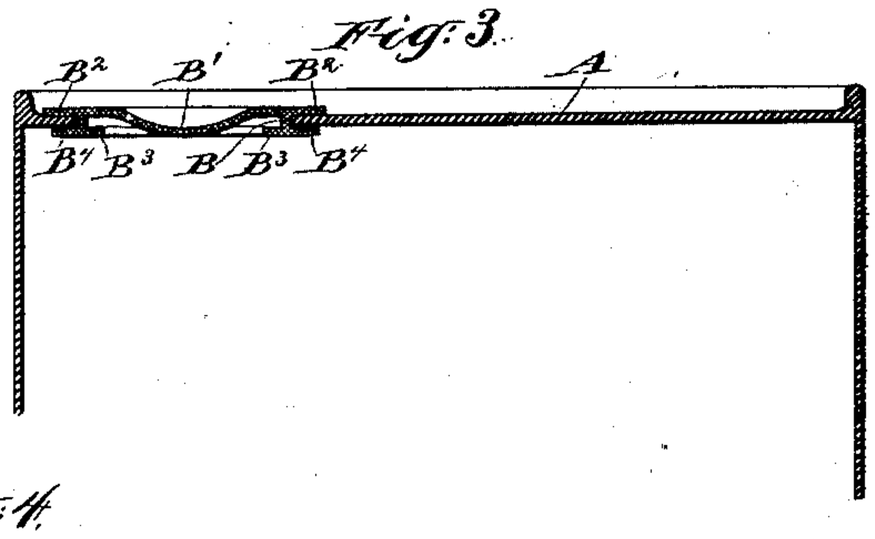

Fig: 4.

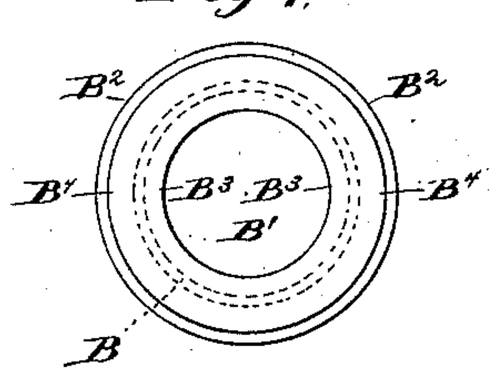

Fig: 5.

Witnesses:
Charles R. Searle,
M. F. Boyle

Inventor:
Christopher Bopp
by his attorney
Thomas Drew Sletson

UNITED STATES PATENT OFFICE.

CHRISTOPHER BOPP, OF BROOKLYN, NEW YORK.

CAN-STOPPER.

SPECIFICATION forming part of Letters Patent No. 358,959, dated March 8, 1887.

Application filed January 4, 1887. Serial No. 223,409. (No model.)

To all whom it may concern:

Be it known that I, CHRISTOPHER BOPP, of Brooklyn, (Green Point,) Kings county, in the State of New York, have invented a certain new and useful Improvement Relating to Can-Stoppers, of which the following is a specification.

The invention is intended more particularly for petroleum-cans—the five-gallons cans, of rectangular section, which are extensively used in storing and transporting kerosene. I have discovered that the circular hole provided in the plane sheet of metal in the end of such can may be effectually closed and kept tightly closed by inserting an expansible hollow plug, with provisions for allowing the fluid to act on the interior and extend it. I will describe it as a hollow piece of soft vulcanized rubber opening into the interior of the can. The form is specially adapted for retaining it reliably in place under all conditions, and for conveniently removing it when required.

The accompanying drawings form a part of this specification, and represent what I consider the best means of carrying out the invention.

Figure 1 is a perspective view showing a large portion of a rectangular kerosene-can provided with my invention. Fig. 2 is a section of the can and plug separate. Fig. 3 is a corresponding section, showing the plug in position and serving as a stopper for a can. Figs. 4 and 5 show a stopper detached. Fig. 4 is a view of the inner face, and Fig. 5 an edge view.

Similar letters of reference indicate corresponding parts in all the figures where they occur.

A is an ordinary petroleum-can, and *a* the ordinary hole in the plane sheet of thin metal constituting one end.

My stopper is a single piece of rubber.

B is a short tube or hollow cylinder having, when free, an external diameter a little greater than that of the hole *a*, which it is to close. B′ is a disk which closes the outer end of this tube. B^2 is the flange or extension of this disk B′ on the exterior of B.

On the inner end of the short tube B is an internal lip or flange, B^3, extending inward, and an external flange, B^4, extending outward.

My stopper may be cheaply and rapidly formed by supplying the material into suitable molds and vulcanizing in the ordinary manner. There may be a grade-mark or a trade-mark, or both, on the outer face, if desired.

After a can is filled with the fluid the inner portion of my stopper is compressed together by the fingers, and by a simple movement introduced through the hole *a* and liberated and forced gently inward until its flange B^2 arrests it. The plug expands by its own elasticity, bringing the exterior of the tubular portion B into contact with the edge of the hole. The can is now effectually plugged. The elasticity of the stopper allows it to yield when it is brought in contact with another can, or with any hard object presented against the exterior. It can thus yield even to the extent of being flattened closely against the can without disturbing its seat. Any pressure of the fluid in the endeavor to escape is exerted by its action against the interior of the disk B′ to drive the plug outward by a direct outward movement, and also by entering its hollow interior and acting radially therein to expand or increase the diameter of the tube B. The pressure in both directions tends to tighten the stopper. The axial movement brings the flange B^4 into tight contact with the inner face of the can. The radial expansion tends to force the interior of the tube B into still tighter contact with the inner edge of the metal around the hole.

To remove the plug the can is set on end with its plugged end uppermost. The stopper is seized by its flange B^2, by grasping any convenient portion by the thumb and fingers, or by any suitable appliance. A sufficient pulling force thus applied induces a collapse of the inner end of the tube B and permits the withdrawal of the entire device.

Modifications may be made without departing from the principle or sacrificing the advantages of the invention.

Parts of the invention may be used without the whole. I can dispense with the outer flange, B^2; but I prefer to retain this as a safeguard against dropping the stopper entirely through the hole into the can, and also as a convenient means of grasping the stopper when it is de-

sired to remove it. The internal flange, B^3, may be omitted; but I prefer to retain it as contributing to the elastic expansive action of the inner end of the stopper. This is most important when, from the upright position of the can and the absence of any vapor, there is no pressure in the interior of the plug to swell it.

I believe that gutta-percha and other elastic materials which possess the requsite qualities, and can be molded or otherwise brought to the required form, may be employed instead of rubber.

I claim as my invention—

1. An expansible plug or stopper composed of rubber or analogous elastic material, having the hollow cylinder or short tube B, outer disk, B′, and flange B^4, adapted to serve as herein specified.

2. An expansible hollow stopper of elastic material, having the tube B, disk B′, internal flange, B^3, and outer flange, B^4, as herein specified.

3. The rubber stopper described, having the tube B, disk B′, and flanges B^2, B^3, and B^4, combined and arranged for joint operation, as herein specified.

In testimony whereof I have hereunto set my hand, at New York city, N. Y., this 28th day of December, 1886, in the presence of two subscribing witnesses.

CHRIST. BOPP.

Witnesses:
CHARLES R. SEARLE,
M. F. BOYLE.